

UNCLASSIFIED

AD NUMBER

AD313758

CLASSIFICATION CHANGES

TO: UNCLASSIFIED

FROM: CONFIDENTIAL

LIMITATION CHANGES

TO:

Approved for public release; distribution is
unlimited.

FROM:

Distribution authorized to U.S. Gov't. agencies
and their contractors;
Administrative/Operational Use; 23 OCT 1959.
Other requests shall be referred to United
States Infantry Board, Fort Benning, GA.

AUTHORITY

USAFA ltr 11 Apr 1973 ; USAFA ltr 11 Apr 1973

THIS PAGE IS UNCLASSIFIED

UNCLASSIFIED

*Reproduced
by the*

ARMED SERVICES TECHNICAL INFORMATION AGENCY
ARLINGTON HALL STATION
ARLINGTON 12, VIRGINIA



DECLASSIFIED
DOD DIR 5200.9

UNCLASSIFIED

AD

313758

FOR
MICRO-CARD
CONTROL ONLY

1

OF

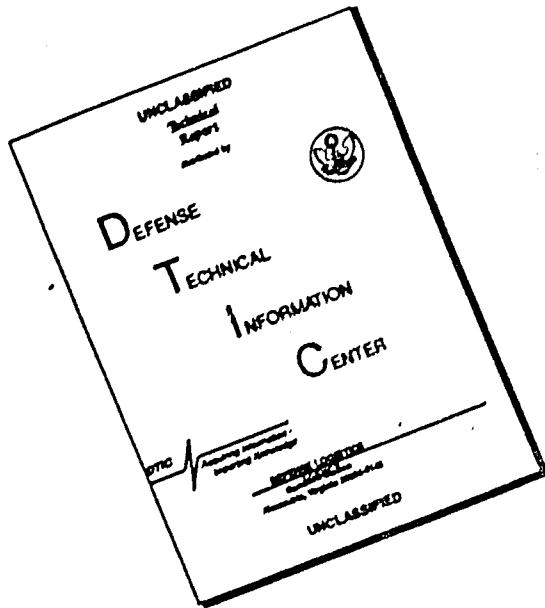
1

Reproduced by

Armed Services Technical Information Agency

ARLINGTON HALL STATION; ARLINGTON 12 VIRGINIA

DISCLAIMER NOTICE



THIS DOCUMENT IS BEST
QUALITY AVAILABLE. THE COPY
FURNISHED TO DTIC CONTAINED
A SIGNIFICANT NUMBER OF
PAGES WHICH DO NOT
REPRODUCE LEGIBLY.

"NOTICE: When Government or other drawings, specifications or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the U.S. Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto."

~~CONFIDENTIAL~~

10

UNITED STATES ARMY INFANTRY BOARD

FORT BENNING, GEORGIA

FILE COPY

SECRET

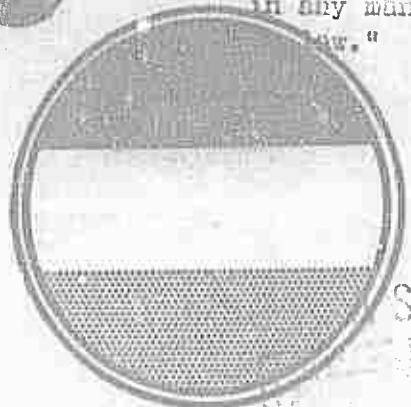
ABTIA

ARLINGTON MAIL STATION
ARLINGTON 12, VIRGINIA

ARMY RIFLE

REPORT OF PROJECT

"This document contains information affecting the National Defense of the United States and is subject to the Espionage Laws, Title 18, U. S. C., Sections 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law."



PROJECT NR. 2869 ~~CONFIDENTIAL~~ A

DEC 8 1959

TPDR

DATE 23 Oct 59

Confirmatory Test of Production Model Rifle, 7.62mm, M14

(DA Project 502-06-006) (u)

TABLE OF CONTENTS ATTACHED AS A FOLD-OUT TO BACK COVER

CONFIDENTIAL

UNITED STATES ARMY INFANTRY BOARD
Fort Benning, Georgia

23 October 1959

REPORT OF PROJECT NR 2869
CONFIRMATORY TEST OF PRODUCTION MODEL RIFLE, 7.62MM, M14
(DA PROJECT 502-08-006) (U)

1. (U) AUTHORITY.

a. Directive. Ltr, ATDEV-3 474/42 (22 Jul 59), USCONARC, 22 July 59, subject: "Confirmatory Test of Production Model Rifle, 7.62mm, M14."

b. Purpose. To determine the suitability of the production model of Rifle, 7.62mm, M14, for Army use under temperate environmental conditions.

c. Scope. The United States Army Infantry Board was responsible for conduct of testing under temperate environmental conditions. The United States Army Arctic Test Board is responsible for testing under arctic environmental conditions. No airborne test phase is required.

2. (U) REFERENCES. (Annex D.)

3. (U) DESCRIPTION OF MATERIEL.

a. Test Items.

(1) The Production Model Rifle, 7.62mm, M14, hereinafter referred to as the test rifle, is similar in weight, design, and appearance to the T44E4 rifle reported in references 2 and 3, Annex D, but incorporates minor modifications designed to eliminate previously reported deficiencies and to facilitate production. The most noticeable changes are as follows:

(a) Modification of the trigger group to permit the use of existing stocks of M1 rifle hammers and safeties.

(b) Calibration of the elevation knob in meters instead of yards.

(c) Provision for attaching a telescopic sight on the left side of the receiver.

(d) Modification to the floor plate of the magazine (Annex C-1).

(2) The Bayonet-Knife, T12, hereinafter referred to as the test bayonet, is essentially the same bayonet as the present standard M5E1

copy 23 of 61 copies
B-2586

CONFIDENTIAL

~~CONFIDENTIAL~~

bayonet-knife modified to fit the M14 rifle (Annex C-2).

(2) The Bayonet-Knife Scabbard, M8A1, hereinafter referred to as the test scabbard, is the present standard bayonet-knife scabbard for the M5El bayonet-knife (Annex C-2).

(4) The maintenance equipment for the Rifle, 7.62mm, M14, hereinafter referred to as the test maintenance equipment, consists of the following items: combination tool, chamber cleaning brush, oil case, grease container, cleaning rod case with spacer, four-section cleaning rod; cleaning patch holder and cleaning brush. This is prototype maintenance equipment developed by Springfield Armory for use with the test rifle (Annex C-3).

b. Control Items. None. Results obtained in this project were compared with results obtained in references 2 and 3, Annex D.

4. (U) BACKGROUND.

a. Evaluation and service tests of a number of different type rifles including the Rifles, 7.62mm, T44E4, and T44E5 were conducted by this Board in 1956 (ref 2 and 3, Annex D). These tests revealed that in general the T44 rifle system was more suitable for Army use than the other types tested. In May 1957 the T44E4 and T44E5 rifles were adopted by DA as the standard rifle and automatic rifle respectively. The T44E4 was standardized as the M14 rifle and the T44E5 was standardized as the M15 rifle. The test rifle is the production model M14 rifle modified to correct previously reported deficiencies. In 1959 this Board determined that the M14 rifle with a hinged butt plate, slotted handguard, and detachable bipod was suitable as an automatic rifle and recommended that it replace the M15 rifle (ref 6, Annex D).

b. The test bayonet was first fabricated for the T44E4 rifle but received only limited testing with that rifle. The same type bayonet was furnished this Board for test with the production model M14 rifle.

c. A need for maintenance equipment for the test rifle was determined during the evaluation and service test of the T44E4 rifle (ref 2 and 3, Annex D). The test maintenance equipment was fabricated by Springfield Armory to satisfy this need.

d. The test weapon is within the Tripartite Standardization program and is entered on Category List 1-7-105-1.

5. (C) SUMMARY OF TEST RESULTS.

a. The test items were subjected to these tests: Physical Characteristics; Ease of Disassembly and Assembly; Sight Calibration; Semiautomatic Accuracy; Automatic Accuracy; Change in Center of Impact with Bayonet Attached; Suitability of Top Loading Feed System; Adverse Conditions; Simulated Combat Conditions; Bayonet Assault Course;

~~CONFIDENTIAL~~

CONFIDENTIAL

Suitability of Bayonet and Scabbard; Position-Disclosing Effects; Suitability of Maintenance Equipment; and Comparison with Military Characteristics.

b. The performance of the test items is satisfactory; however, the following corrections and improvements are desired:

- (1) Reduction of sensitivity of the rifle to muddy water.
- (2) Further refinement of the top loading feed system to reduce the effort and time required to load one or more 5-round clips.
- (3) Reduction of sensitivity of the rifle to damp, dirty conditions.
- (4) Reduction of smoke in the weapon-ammunition combination.
- (5) Increased accuracy in automatic fire.
- (6) Better dissipation of the heat which is concentrated in the forward-most part of the stock during rapid or prolonged firing.
- (7) Strengthening of the forward stock retaining flange of the test rifle to endure the shock of the slashing movement in bayonet fighting.
- (8) Refinement of the test bayonet latch to prevent the bayonet from disengaging from the rifle during bayonet fighting.
- (9) Elimination of the bolt disassembly capability in the test maintenance equipment.

c. Six of the test rifles were fired approximately 6,000 rounds each. During these firings only two broken parts (other than cracked stocks) were experienced (one operating rod spring and one bolt roller retainer).

d. One flash suppressor was broken while a bayonet slash was executed against a dummy made of burlap covered cane poles. The flash suppressor broke at a brazed joint. (A Springfield Armory technical representative stated that this method of fabrication of the flash suppressor will not be used in future production model rifles.)

e. One test rifle experienced a very large number of stubbed round type malfunctions. A satisfactory explanation for these malfunctions could not be determined.

6. (3) DISCUSSION.

a. Since the test rifle was provided with a selector it was tested in the automatic fire role even though the prototype weapon was not tested in this role. Results were compared with those obtained for the T44E5 (M15) rifle during the service test of lightweight rifles (ref 2, Annex D). Results of automatic firing with the test rifle were comparable to the results of automatic firing with the T44E5. However, neither the T44E5 nor the test rifle fully meet the military characteristics for automatic fire accuracy (par 5, Annex B).

CONFIDENTIAL

CONFIDENTIAL

b. Test rifles were cleaned and given a light coat of oil at the start of each test except when the conditions of the specific test required otherwise. At no time was it necessary to use the grease provided in the maintenance equipment.

7. (C) CONCLUSIONS. The United States Army Infantry Board concludes that:

a. Modifications incorporated in the production model Rifle, 7.62mm, M14, ~~have~~ corrected most of the deficiencies ~~reported~~ in references 2 and 3, Annex D. No new deficiencies have been introduced in this weapon.

b. The Bayonet-Knife, T12, is suitable for Army use with the Rifle, 7.62mm, M14, ~~M1A1~~.

c. The Bayonet-Knife Scabbard, ~~M8AL~~, is suitable for Army use with the Bayonet-Knife, T12.

d. The maintenance equipment for the Rifle, 7.62mm, M14, ~~is~~ suitable for Army use.

e. The elimination or correction of the deficiencies enumerated in Annex D will render the test items more suitable for Army use under temperate environmental conditions.

8. (C) RECOMMENDATIONS. It is recommended that:

a. The production model Rifle, 7.62mm, M14, be considered suitable for Army use under temperate environmental conditions.

b. The Bayonet-Knife, T12, be considered suitable for Army use under temperate environmental conditions and type classified as Standard A.

c. The Bayonet-Knife, M5EL, be reclassified as Standard B and be retained for use with the M1 rifle as required.

d. The Bayonet-Knife Scabbard, M8AL, be considered suitable for Army use with the Bayonet-Knife, T12, under temperate environmental conditions.

e. The maintenance equipment for Rifle, 7.62mm, M14, be considered suitable for Army use with the Rifle, 7.62mm, M14, under temperate environmental conditions and type classified as Standard A.

CONFIDENTIAL

CONFIDENTIAL

f. The present standard maintenance equipment for the Caliber .30, M1 Rifle, be reclassified as Standard B.

g. Continued effort be directed toward eliminating or correcting the deficiencies enumerated in Annex B.

ANNEXES:

- A. Details of Test (Omitted)
- B. Deficiencies and Suggested Modifications
- C. Photographs
- D. References
- E. Coordination (Omitted)

Henry B. Kunzig
HENRY B. KUNZIG
Colonel, Infantry
President

CONFIDENTIAL

CONFIDENTIAL

ANNEX B - DEFICIENCIES AND SUGGESTED MODIFICATIONS

Report of Project Nr 2869

(C) The deficiencies listed in this annex are those that remain uncorrected at the completion of this project. They are listed as minor deficiencies, the correction or elimination of which will increase the efficiency or desirability of the item, but which need not be corrected to make the item suitable for Army use.

Rifle, 7.62mm, M4.

<u>Minor Deficiency</u>	<u>Results</u>	<u>Suggested Modification</u>
1. Weapon is unduly sensitive to muddy water.	Poor performance	Improve.
2. Top loading feed system is difficult and slow.	Requires excessive time and effort to reload rifle with 5-round clips.	Correct.
3. Weapon is unduly sensitive to damp, dirty conditions.	Poor performance.	Improve.
4. Weapon-ammunition combination produces excessive smoke.	Reveals firer's position.	Correct
5. Insufficient accuracy during automatic firing.	Fails to meet military characteristics of 80% of a 10-round group hitting within a 40" circle at 50 and 200 yards.	Correct
6. Bolt does not close upon insertion of loaded magazine.	Requires additional action to prepare weapon for firing.	Correct.
7. Forward-most part of stock becomes very hot during rapid or prolonged firing.	Firer is unable to hold rifle by these parts.	Correct.
8. Forward stock retaining flange lacks the strength required to allow execution of the bayonet slashing movement (Annex C-4).	Allows rifle stock and other components to separate.	Enlarge forward stock retaining flange to provide stronger connection.

CONFIDENTIAL

~~CONFIDENTIAL~~

<u>Minor Deficiency</u>	<u>Results</u>	<u>Suggested Modification</u>
9. Upper sling swivel is not far enough forward.	Prevents soldier from grasping rifle behind upper sling swivel during bayonet fighting.	Move upper sling swivel as far forward on the stock as is possible.
10. Elevation knob does not have distinctive mark for 250 meter battle sight.	More difficult for shooter to locate battle sight setting.	Add distinctive mark at 250 meters.
11. Metal parts in numerous places become burred or scratched during use.	Creates unnecessary wear and friction.	Correct.
12. Bottom plate of magazine becomes partially disengaged from magazine body during firing.	Allows dirt to enter magazine.	Correct.

Bayonet-Knife, T12.

<u>Minor Deficiency</u>	<u>Results</u>	<u>Suggested Modification</u>
13. Bayonet latch is too large and overly exposed (Annex C-2).	Bayonet can be accidentally knocked off rifle during bayonet fighting.	Correct.
14. Spring tension of bayonet latch assembly is not consistent on all bayonets.	Accuracy of the weapon with bayonet varies according to the resistance of the bayonet latch spring.	Make spring resistance more uniform. (Best accuracy was obtained with the bayonets having latches with strong spring resistance.)

Maintenance Equipment.

<u>Minor Deficiency</u>	<u>Results</u>	<u>Suggested Modification</u>
15. Maintenance equipment has too many parts (Annex C-3).	Parts are easily lost or are unnecessary.	Correct by eliminating bolt disassembly feature and plastic cap. Make handle of cleaning rod in one piece by having wrench and screwdriver tip as integral part of handle.

~~CONFIDENTIAL~~

CONFIDENTIAL

Maintenance Equipment.

<u>Minor Deficiency</u>	<u>Results</u>	<u>Suggested Modification</u>
16. Tab on cleaning rod case easily punctured by sections of cleaning rod (Annex C-3).	Reduces life of cleaning rod case.	Reinforce tab of case.

B

CONFIDENTIAL

C



UNITED STATES ARMY INFANTRY BOARD
FORT BENNING, GEORGIA

PROJECT NR
2869

DATE
11 Sep 59

NEGATIVE NR
09-166-1274/AJ-59

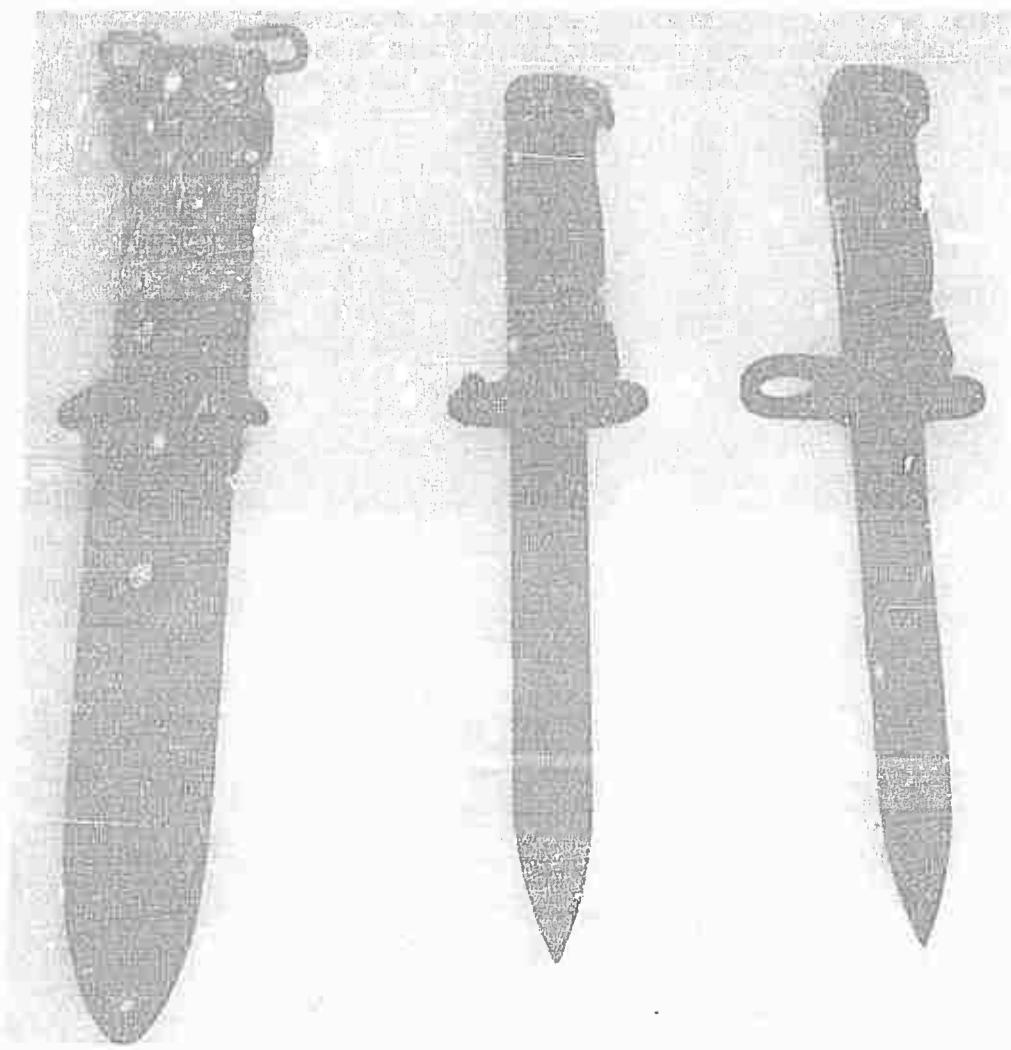
CONFIRMATORY TEST OF PRODUCTION MODEL RIFLE, 7.62MM, M14

Top Left - Steel Magazine tested in this project.

Top Right - Steel Magazine previously tested.

Bottom Center - Position of magazine floor plate after firing.

ANNEX C-1



UNITED STATES ARMY INFANTRY BOARD
FORT BENNING, GEORGIA

PROJECT NR
2869

DATE
11 Sep 59

NEGATIVE NR
09-166-1275/AJ-59

CONFIRMATORY TEST OF PRODUCTION MODEL RIFLE, 7.62MM, M14

- Left - Bayonet Knife Scabbard.
Center - Bayonet Knife.
Right - T12 Bayonet Knife.

ANNEX C-2

CASE, CLEANING ROD



SPACER, CLEANING ROD

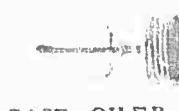


BRUSH, CLEANING, CAL. 30

HOLDER, CLEANING PATCH



SECTIONS, CLEANING ROD



CASE, OILER



BRUSH, CHAMBER CLEANING
7.62 MM

CONTAINER, GREASE



HEAD ASSY, WRENCH



HANDLE ASSY,
CLEANING ROD

CAP, CLEANING
ROD HANDLE

COMBINATION TOOL

UNITED STATES ARMY INFANTRY BOARD
FORT BENNING, GEORGIA

PROJECT NR
2869

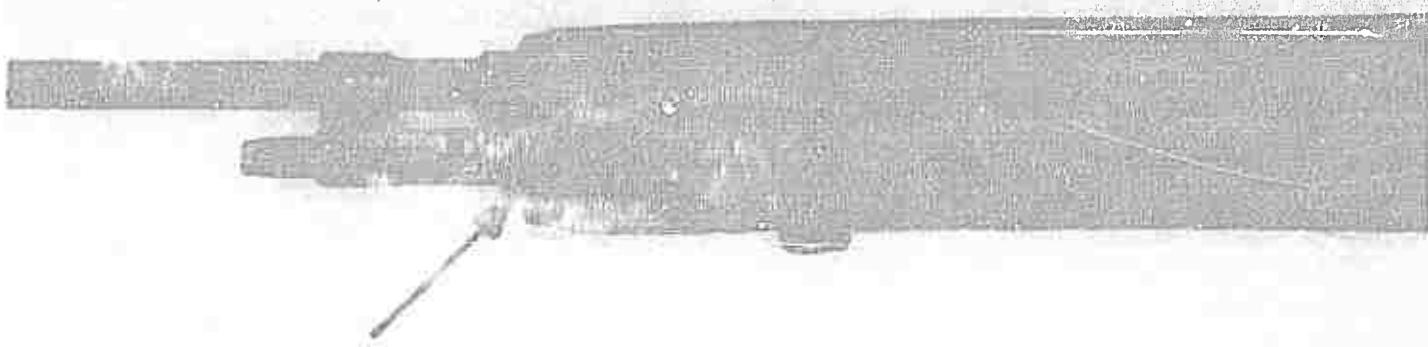
DATE
11 Sep 59

NEGATIVE NR
09-166-1276/AJ-59

CONFIRMATORY TEST OF PRODUCTION MODEL RIFLE, 7.62MM, M14

Maintenance equipment for Rifle, 7.62mm, M14.

APPENDIX C-3



UNITED STATES ARMY INFANTRY BOARD
FORT BENNING, GEORGIA

PROJECT NR
2869

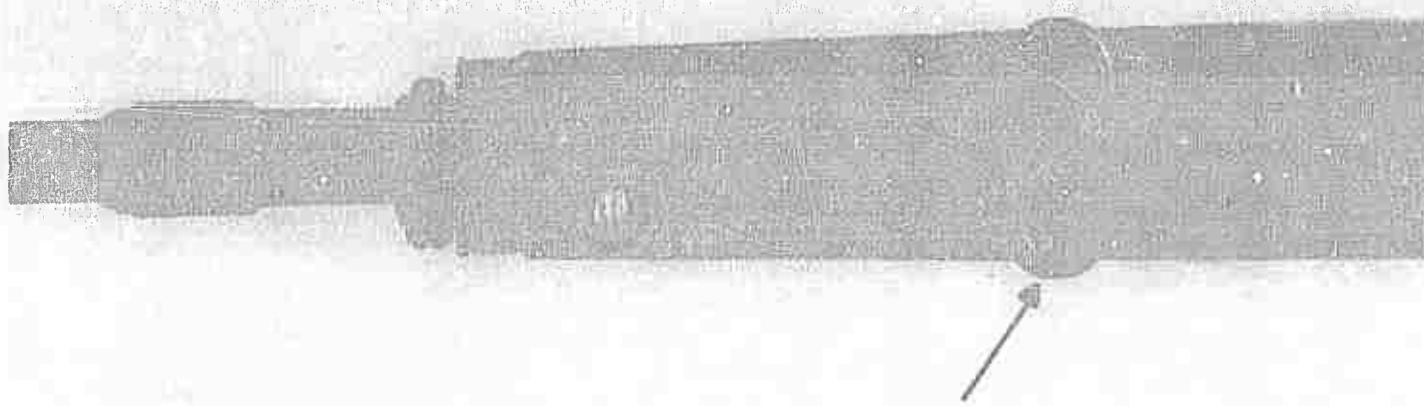
DATE
11 Sep 59

NEGATIVE NR
09-166-1277/AJ-59

CONFIRMATORY TEST OF PRODUCTION MODEL RIFLE, 7.62mm, M14

Stock of rifle, separated as the result of
executing the bayonet slash.

ANNEX C-4



**UNITED STATES ARMY INFANTRY BOARD
FORT BENNING, GEORGIA**

PROJECT NR
2869

DATE
11 Sep 59

NEGATIVE NR
09-166-1278/AJ-59

CONFIRMATORY TEST OF PRODUCTION MODEL RIFLE, 7.62MM, M14

Details of the underside of the rifle, showing
the location of the upper sling swivel.

ANNEX C-5

ANNEX D - REFERENCES

Report of Project Nr 2869

1. OCM Item 34142, OCOFORD, DA, 30 Jan 52, subject: "Rifle, Caliber .30, Lightweight - Military Characteristics (U)."
2. Report of Project Nr 2886, Bd Nr 3, CONARC, 28 May 56, Service Test of Lightweight Rifles (U).
3. Report of Project Nr 2726, Bd Nr 3, CONARC, 29 May 56, Evaluation of Lightweight Rifles (U).
4. OTCM Item 36558, OCOFORD, DA, 13 Jun 57, subject: "Type Classification as Standard of the T44 Rifle System (U)."
5. Ltr, OT DC 1, Office of the Deputy Chief of Staff for Military Operations, DA, 19 Feb 59, subject: "Requirement for the Bayonet."
6. Report of Project Nr 2839, US Army Inf Bd, 12 May 59, Service Test of Rifle, 7.62mm, M1A, Modified for the BAR Role (U).

TABLE OF CONTENTS

Report of Project Nr 2869

		<u>Page</u>
Paragraph	1. AUTHORITY	1
	2. REFERENCES	1
	3. DESCRIPTION OF MATERIEL	1
	4. BACKGROUND	2
	5. SUMMARY OF TEST RESULTS	2
	6. DISCUSSION	3
	7. CONCLUSIONS	4
	8. RECOMMENDATIONS	4
ANNEX	A. DETAILS OF TEST (Omitted)	
ANNEX	B. DEFICIENCIES AND SUGGESTED MODIFICATIONS	6
ANNEX	C. PHOTOGRAPHS	9
ANNEX	D. REFERENCES	14
ANNEX	E. COORDINATION (Omitted)	